

FACT SHEET

as required by LAC 33:IX.3109 for major LPDES facilities, for draft **Louisiana Pollutant Discharge Elimination System Permit No. LA0038709; AI 19807; PER20070002** to discharge to waters of the **State of Louisiana** as per LAC 33:IX.2311.

The **permitting authority** for the Louisiana Pollutant Discharge Elimination System (LPDES) is:

Louisiana Department of Environmental Quality
Office of Environmental Services
P. O. Box 4313
Baton Rouge, Louisiana 70821-4313

- I. **THE APPLICANT IS:** City of DeQuincy
 DeQuincy Wastewater Treatment Facility
 P.O. Box 968
 DeQuincy, LA 70663

- II. **PREPARED BY:** Eura DeHart

- DATE PREPARED:** May 30, 2008

- III. **PERMIT ACTION:** reissue LPDES permit LA0038709, AI19807

- LPDES application received: June 14, 2007

- EPA has not retained enforcement authority.

- LPDES permit issued: February 1, 2001
- LPDES permit effective: March 1, 2001
- LPDES permit expired: February 28, 2006

IV. **FACILITY INFORMATION:**

- A. The application is for the discharge of treated sanitary wastewater from an existing publicly owned treatment works serving the City of DeQuincy.

- B. The permit application does not indicate the receipt of industrial wastewater.

- C. The facility is located at the end of William Still Road in DeQuincy, Calcasieu Parish.

- D. The treatment facility consists of an extended aeration basin, two secondary clarifiers, and a tertiary filter. Disinfection is by ultraviolet light.

- E. Outfall 001

- Discharge Location: Latitude 30°26'15" North
 Longitude 93°25'26" West

- Description: treated sanitary wastewater

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Design Capacity: 1.1 MGD

Type of Flow Measurement which the facility is currently using:
Parshall Flume with Continuous Recorder

V. **RECEIVING WATERS:**

The discharge is into Buxton Creek, thence into the Houston River in segment 030806 of the Calcasieu River Basin.

Subsegment 030806 is listed on LDEQ's Final 2006 303(d) list as impaired for mercury for which the below TMDL has been developed. Subsegment 030806 was previously listed on LDEQ's Final 2006 303(d) list as impaired for organic enrichment/low DO for which the below TMDL has been developed. The Department of Environmental Quality reserves the right to impose more stringent discharge limitations and/or additional restrictions in the future to maintain the water quality integrity and the designated uses of the receiving waterbodies based on additional TMDL's and/or water quality studies. The DEQ also reserves the right to modify or revoke and reissue this permit based upon any changes to established TMDL's for this discharge, or to accommodate for pollutant trading provisions in approved TMDL watersheds as necessary to achieve compliance with water quality standards.

The following TMDL's have been established for Subsegment 030806:

Houston River Watershed TMDL for Biochemical Oxygen-Demanding Substances (Subsegment 030806) December 5, 2001

Per the TMDL, Buxton Creek and the City of DeQuincy were included in the model. "The DO criteria in the Houston River were met with the City of DeQuincy discharging at its current permit limits of 10/2 (CBOD₅/NH₃-N). Therefore, its current permit limits will remain the same except for the addition of a 5.0 mg/L DO permit limit for its effluent."

Coastal Mercury TMDL

The City of Dequincy was identified in Appendix C of the TMDL as a point source discharge included in the TMDL. The City of Dequincy does not have a mercury limit in the current permit. However, the Coastal Mercury TMDL gives this facility a wasteload allocation for mercury.

It is the position of this Department that development and implementation of a Mercury Minimization Plan (MMP) will result in the most efficient reduction of mercury discharges to surface waters of Louisiana from domestic wastewater treatment facilities. Pollution prevention and waste minimization are more reasonably accomplished and cost productive than the implementation of controls and technologies to meet such stringent end-of-pipe mercury limitations as imposed by this TMDL. The MMP employs EPA approved analytical methods (EPA Methods 1631, 245.7) through effluent sampling and system wide monitoring programs to locate and identify potential sources of mercury in the treatment system. Once identified the MMP integrates cost-effective reduction controls, either treatment or prevention based, to reduce or eliminate mercury from the source.

Effluent monitoring data utilizing the more sensitive EPA approved test methods will be submitted as part of the MMP. Upon review of the MMP and subsequent annual reports, LDEQ reserves

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requirements in order to address mercury concerns.

The permittee shall develop and implement a Mercury Minimization Program Plan within one year of the effective date of the permit. Yearly thereafter, the permittee shall submit an annual report. See attached Mercury Minimization Guidance Document for additional information.

The **critical low flow** (7Q10) of the Buxton Creek is 0.20 cfs.

The **hardness value** is 119.0 mg/l and the **fifteenth percentile value for TSS** is 4.0 mg/l. (Memo dated May 21, 1999 from Mr. Max J. Forbes, Jr., Louisiana Department of Environmental Quality.)

The designated uses and degree of support for Segment 030806 of the Calcasieu River Basin are as indicated in the table below^{1/}:

Overall Degree of Support for Segment 030806	Degree of Support of Each Use						
Partial	Primary Contact Recreation	Secondary Contact Recreation	Propagation of Fish & Wildlife	Outstanding Natural Resource Water	Drinking Water Supply	Shell fish Propagation	Agriculture
	Full	Full	Not Supported	N/A	N/A	N/A	Full

^{1/} The designated uses and degree of support for Segment 030806 of the Calcasieu River Basin are as indicated in LAC 33:IX.1123.C.3, Table (3) and the 2004 Water Quality Management Plan, Water Quality Inventory Integrated Report, Appendix A, respectively.

VI. ENDANGERED SPECIES:

The receiving waterbody, Subsegment 030806 of the Calcasieu River Basin, is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish & Wildlife Service (FWS). This strategy was submitted with a letter dated October 24, 2007 from Boggs (FWS) to Brown (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and FWS, no further informal (Section 7, Endangered Species Act) consultation is required. It was determined that the issuance of the LPDES permit is not likely to have an adverse effect on any endangered species or candidate species or the critical habitat. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat.

VII. HISTORIC SITES:

The discharge is from an existing facility location, which does not include an expansion beyond the existing perimeter. Therefore, there should be no potential effect to sites or properties on or eligible to for listing on the National Register of Historic Places, and in accordance with the

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'Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits' no consultation with the Louisiana State Historic Preservation Officer is required.

VIII.

PUBLIC NOTICE:

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit modification and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the statement of basis. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List

For additional information, contact:

Mr. Eura DeHart
Permits Division
Department of Environmental Quality
Office of Environmental Services
P. O. Box 4313
Baton Rouge, Louisiana 70821-4313

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IX. PROPOSED PERMIT LIMITS:

The reporting requirements of the previous permit for cadmium and lead were removed from the permit as it was determined a water quality limit was not needed.

Final Effluent Limits:**OUTFALL 001**

Final limits shall become effective on the effective date of the permit and expire on the expiration date of the permit.

Effluent Characteristic	Monthly Avg. (lbs./day)	Monthly Avg.	Weekly Avg.	Basis
CBOD ₅	92	10 mg/l	15 mg/l	Limits are set in accordance with the Louisiana Water Quality Management Plan, <i>Houston River Watershed TMDL for Biological Oxygen-Demanding Substances</i> , and the previous permit
TSS	138	15 mg/l	23 mg/l	Since there is no numeric water quality criterion for TSS, and in accordance with the current Water Quality Management Plan, the TSS effluent limitations shall be based on a case-by-case evaluation of the treatment technology being utilized at a facility. Therefore, a Technology Based Limit has been established through Best Professional Judgement for the type of treatment technology utilized at this facility.
Ammonia-Nitrogen	18	2 mg/l	4 mg/l	Limits are set in accordance with the Louisiana Water Quality Management Plan, <i>Houston River Watershed TMDL for Biological Oxygen-Demanding Substances</i> , and the previous permit
Dissolved Oxygen**		5.0 mg/l	N/A	Louisiana Water Quality Management Plan and the <i>Houston River Watershed TMDL for Biological Oxygen-Demanding Substances</i>

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**This Dissolved Oxygen limit is the lowest allowable average of daily discharges over a calendar month. When monitoring is conducted, the Dissolved Oxygen shall be analyzed immediately, as per 40 CFR 136.3.

Priority Pollutants

Effluent Characteristic	Monthly Avg. (lbs./day)	Daily Maximum (lbs./day)	Basis
Total Copper	0.21	0.50	Water Quality Screen indicated no need for a WQBL; however, the limit will remain in the permit due to prior noncompliance record.*

*The limitation for total copper has been set at the calculated water quality based limit. The change of the limitation from the previous permit represents a change in the calculated water quality based limit.

Other Effluent Limitations:**1) Fecal Coliform**

The discharge from this facility is into a water body which has a designated use of Primary Contact Recreation. According to LAC 33:IX.1113.C.5, the fecal coliform standards for this water body are 200/100 ml and 400/100 ml. Therefore, the limits of 200/100 ml (Monthly Average) and 400/100 ml (Weekly Average) are proposed as Fecal Coliform limits in the permit. These limits are being proposed through Best Professional Judgement in order to ensure that the water body standards are not exceeded, and due to the fact that existing facilities have demonstrated an ability to comply with these limitations using present available technology.

2) pH

According to LAC 33:IX.3705.A.1., POTW's must treat to at least secondary levels. Therefore, in accordance with LAC 33:IX.5905.C, the pH shall not be less than 6.0 standard units nor greater than 9.0 standard units at any time.

3) Solids and Foam

There shall be no discharge of floating solids or visible foam in other than trace amounts in accordance with LAC 33:IX.1113.B.7.

4) Toxicity Characteristics

In accordance with EPA's Region 6 Post-Third Round Toxics Strategy, permits issued to treatment works treating domestic wastewater with a flow (design or expected) greater

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than or equal to 1 MGD shall require biomonitoring at some frequency for the life of the permit or where available data show reasonable potential to cause lethality, the permit shall require a whole effluent toxicity (WET) limit (*Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards*, August 13, 2007 VERSION 5).

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates the effects of synergism of the effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. LAC 33:IX.1121.B.3. provides for the use of biomonitoring to monitor the effluent for protection of State waters. The biomonitoring procedures stipulated as a condition of this permit are as follows:

The permittee shall submit the results of any biomonitoring testings performed in accordance with the LPDES Permit No. LA0038709, **Biomonitoring Section** for the organisms indicated below.

<u>TOXICITY TESTS</u>	<u>FREQUENCY</u>
Chronic static renewal 7-day survival & reproduction test using <u>Ceriodaphnia dubia</u> (Method 1002.0)	1/quarter
Chronic static renewal 7-day survival & growth test using fathead minnow (<u>Pimephales promelas</u>) (Method 1000.0)	1/quarter

Dilution Series - The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional concentrations shall be 28%, 38%, 50%, 67%, and 89%. The low-flow effluent concentration (critical low-flow dilution) is defined as 89% effluent. The critical dilution is calculated in Appendix B-1 of this fact sheet. Results of all dilutions shall be documented in a full report according to the test method publication mentioned in the **Biomonitoring Section** under Whole Effluent Toxicity. This full report shall be submitted to the Office of Environmental Compliance as contained in the Reporting Paragraph located in the **Biomonitoring Section** of the permit.

The permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.2383. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

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X. PREVIOUS PERMITS:

LPDES Permit No. LA0038709: Issued: March 1, 2001
Expired: February 28, 2006

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Daily Avg.</u>	<u>Daily Max.</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow	Report	Report	Continuous	Recorder
CBOD ₅	10 mg/l	15 mg/l	2/week	6-Hour Composite
TSS	15 mg/l	23 mg/l	2/week	6-Hour Composite
Ammonia-Nitrogen	2 mg/l	4 mg/l	2/week	6-Hour Composite
Fecal Coliform Colonies	200	400	2/week	Grab
Copper	0.22 lbs/day	0.52 lbs/day	1/quarter	24-Hour Composite
Cadmium	Report	Report	1/6 months	24-Hour Composite
Lead	Report	Report	1/6 months	24-Hour Compos
Biomonitoring				
<i>Pimephales promelas</i>	Report	Report	1/quarter	24-Hour Composite
<i>Ceriodaphnia dubia</i>	Report	Report	1/quarter	24-Hour Composite

The permit contains biomonitoring.

The permit contains pollution prevention language.

The permit contains pretreatment language.

XI. ENFORCEMENT AND SURVEILLANCE ACTIONS:**A) Inspections**

A review of the files indicates the most recent inspection was conducted on November 29, 2007 for this facility.

Inspector's Observations:

A compliance evaluation inspection was conducted with the following noted:

- DMR review from 10/06 – 10/07 revealed several excursions in 03/07 – 05/07 sample period
- Loading calculation check on NH₃ for Aug. '07
- Permit renewal application deemed complete on 6/14/07
- 24 hour notification was not done on 03-05/07 for copper exceedence
- NIST thermometer for sample refrigerator last calibrated on 6/15/07
- Flow meter last calibrated on 4/4/07 – Primary 9" parshall flume
- Flow proportioning of 6-hour and 24-hour composite sampling is not conducted properly. (Recommend composite sampler be used during sampling events)

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1/7/08 Supplemental

Upon further review of information obtained during the course of the 11/29/07 inspection, the following areas of concern are noted:

- The operators daily log indicated that the facility is not recording the daily flow for a 24 hr period and is rounding the effluent flow rate (MGD)
- The facility did not retest the TLP3B test when a failing result was reported during the 03-05/07 sample period.

B) Compliance and/or Administrative Orders

A review of the files indicates there are no recent enforcement actions administered against this facility.

C) DMR Review

A review of the discharge monitoring reports for the period beginning May 1, 2005 through November 30, 2007 has revealed the following violations:

Parameter	Outfall	Period of Excursion	Permit Limit	Reported Quantity
Total Copper (Monthly Avg.)	001	December 2005 –February 2006	0.22 lbs/day	0.799 lbs/day
Total Copper (Daily Max.)	001	December 2005 –February 2006	0.52 lbs/day	0.799 lbs/day
Total Copper (Monthly Avg.)	001	March - May 2006	0.22 lbs/day	0.659 lbs/day
Total Copper (Daily Max.)	001	March - May 2006	0.52 lbs/day	0.659 lbs/day

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ADDITIONAL INFORMATION:

The Department of Environmental Quality reserves the right to impose more stringent discharge limitations and/or additional restrictions in the future to maintain the water quality integrity and the designated uses of the receiving water bodies based upon additional water quality studies and/or TMDLs. The DEQ also reserves the right to modify or revoke and reissue this permit based upon any changes to established TMDLs for this discharge, or to accommodate for pollutant trading provisions in approved TMDL watersheds as requested by the permittee and/or as necessary to achieve compliance with water quality standards. Therefore, prior to upgrading or expanding this facility, the permittee should contact the Department to determine the status of the work being done to establish future effluent limitations and additional permit conditions.

Effluent loadings are calculated using the following example:

$$\text{BOD: } 8.34 \text{ gal/lb} \times 1.1 \text{ MGD} \times 10 \text{ mg/l} = 92 \text{ lb/day}$$

At present, the **Monitoring Requirements, Sample Types, and Frequency of Sampling** as shown in the permit are standard for facilities of flows between 1.0 MGD and 5.0 MGD.

Effluent Characteristics

Flow
Total Suspended Solids

Monitoring Requirements

<u>Measurement</u>	<u>Sample</u>
<u>Frequency</u>	<u>Type</u>
Continuous	Recorder
2/week	6 Hr. Composite

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BOD ₅	2/week	6 Hr. Composite
Ammonia-Nitrogen	2/week	6 Hr. Composite
Dissolved Oxygen	2/week	Grab
Fecal Coliform Bacteria	2/week	Grab
Total Copper	1/quarter	24 Hr. Composite
Biomonitoring		
<u>Ceriodaphnia dubia</u> (Method 1002.0)	1/quarter	24 Hr. Composite
<u>Pimephales promelas</u> (Method 1000.0)	1/quarter	24 Hr. Composite
pH	2/week	Grab

Pretreatment Requirements

Based upon consultation with LDEQ pretreatment personnel, general pretreatment language will be used due to the lack of either an approved or required pretreatment program. (See attached Pretreatment Evaluation and Recommendation)

Pollution Prevention Requirements

The permittee shall institute or continue programs directed towards pollution prevention. The permittee shall institute or continue programs to improve the operating efficiency and extend the useful life of the facility. The permittee will complete an annual Environmental Audit Report **each year** for the life of this permit according to the schedule below. The permittee will accomplish this requirement by completing an Environmental Audit Form which has been attached to the permit. All other requirements of the Municipal Wastewater Pollution Prevention Program are contained in Part II of the permit.

The audit evaluation period is as follows:

Audit Period Begins	Audit Period Ends	Audit Report Completion Date
Effective Date of Permit	12 Months from Audit Period Beginning Date	3 Months from Audit Period Ending Date

Stormwater Discharges

Because the design flow of the DeQuincy Wastewater Treatment Facility is equal to or greater than 1.0 MGD and in accordance with LAC 33:IX.2511.B.14.i, the facility may contain storm water discharges associated with industrial activity. Therefore, in accordance with LAC 33:IX.2511.A.1.b, specific requirements addressing stormwater discharges will be included in the discharge permit.

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TENTATIVE DETERMINATION:

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to reissue a permit for the discharge described in this Statement of Basis.

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REFERENCES:

Louisiana Water Quality Management Plan / Continuing Planning Process, Vol. 8, "Wasteload Allocations / Total Maximum Daily Loads and Effluent Limitations Policy," Louisiana Department of Environmental Quality, 2005.

Louisiana Water Quality Management Plan / Continuing Planning Process, Vol. 5, "Water Quality Inventory Section 305(b) Report," Louisiana Department of Environmental Quality, 1998.

Louisiana Administrative Code, Title 33 - Environmental Quality, Part IX - Water Quality Regulations, Chapter 11 - "Louisiana Surface Water Quality Standards", Louisiana Department of Environmental Quality, 2004.

Louisiana Administrative Code, Title 33 - Environmental Quality, Part IX - Water Quality Regulations, Subpart 2 - "The LPDES Program", Louisiana Department of Environmental Quality, 2004.

Low-Flow Characteristics of Louisiana Streams, Water Resources Technical Report No. 22, United States Department of the Interior, Geological Survey, 1980.

Index to Surface Water Data in Louisiana, Water Resources Basic Records Report No. 17, United States Department of the Interior, Geological Survey, 1989.

LPDES Permit Application to Discharge Wastewater, City of DeQuincy, DeQuincy Wastewater Treatment Facility, June 14, 2007.

APPENDIX I

Numeric Toxic Limits: LDEQ has reviewed and evaluated the effluent analyses submitted by the permittee on June 14, 2007 and reported on DMRs from March 2005 to November 2007, and examined the following pollutants that are regulated by LAC 33:IX.1113.C.6. in accordance with the implementation procedures outlined under the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, August 13, 2007. Please see Appendix B-1, Water Quality Screen Spreadsheet.

Pollutant	Ce ¹	Ce x 2.13 ²	Water Quality Based Limit ³	Drinking Water Source	Permit Limit [?]
Cadmium	0.003 lbs/day	0.0068 lbs/day	0.0362 lbs/day	-----	No
Copper	0.08 lbs/day	0.170 lbs/day	0.2104 lbs/day	-----	No
Zinc	66 µg/L	140.58 µg/L	1.4937 lbs/day	-----	No
Lead	0.013 lbs/day	0.0277 lbs/day	0.1016 lbs/day	-----	No

- 1/ Metals concentration results were presented as total metals in lab analysis submitted by the permittee.
- 2/ For the reported effluent concentrations (Ce) it is estimated that 95% of the concentrations of chemicals taken over time will be 2.13 times the Ce or less.
- 3/ The water quality based limit is the maximum allowable instream concentration for that pollutant to be in compliance with water quality standards. Louisiana Water Quality Criteria for metals are hardness dependent, and expressed as dissolved metals. The water quality based limit is calculated with a conversion for metals limits expressed as total metals.

The following steps were used in evaluating the potential toxicity of the analyzed pollutants (see Appendix B-1):

- i. An evaluation of the applicability of the effluent data.

Results of the PPS were entered and compared to EPA's Minimum Quantification Levels (MQL's) to determine the potential presence of the respective toxic pollutant. Those pollutants with reported laboratory Method Detection Levels (MDL's) which exceed their respective EPA MQL's are determined to be reasonably present in the effluent and an evaluation of their potential toxicity is determined. Those pollutants with MDLs less than the MQL are determined to be not potentially present in the effluent and eliminated from further evaluation. Data for cadmium, copper, and lead submitted on DMRs were also reviewed from March 2005 to November 2007. This data was also compared to the water quality based limit.

- ii. Calculation of permit limits based on applicable water quality standards.

Applicable water quality criteria are listed in the Appendix B-1 in Columns 12-14. These

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values were used to calculate the Waste Load Allocations (WLAs) for each of the toxic pollutants. The WLA is the maximum allowable concentration of a pollutant necessary to meet the respective water quality criteria. The WLAs are calculated as described in the State's Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, dated August 13, 2007, as follows (Zinc is used as the example pollutant for the following calculations):

Complete Mix Balance Model for Waste Load Allocation

Qe	=	plant effluent, MGD = 1.1
Qr	=	critical flow of receiving stream, 0.20 cfs
Fs	=	MZ, ZID flow fraction, LAC 33:IX.1115.D.7 and 8 (MZ = 1, and ZID = 0.1)
Cr	=	numerical criteria value from LAC 33:IX.1113, Table 1
Cu	=	ambient instream concentration for pollutant. In the absence of accurate supporting data, assume Cu = 0
WLA	=	concentration for pollutant at end-of-pipe based on aquatic life and human health numerical criteria (site specific dilution type)
LTA	=	long term average, units same as WLA
WQBL	=	effluent water quality based limit.

$$\text{Dilution factor} = \frac{Q_e}{(Q_r F_s + Q_e)}$$

$$\begin{aligned} \text{Dilution factor (acute)} &= \frac{1.1}{(0.20)(0.6463)(0.1) + 1.1} \\ &= 0.988 \end{aligned}$$

$$\begin{aligned} \text{Dilution factor (chronic)} &= \frac{1.1}{(0.20)(0.6463)(1.0) + 1.1} \\ &= 0.895 \end{aligned}$$

$$\text{WLA} = (\text{Cr/Dilution factor}) - (\text{FsQrCu/Qe})$$

iii. Conversion of dissolved metals criteria for aquatic life to total metals.

Metals criteria for aquatic life protection are based on dissolved metals concentrations and hardness values averaged from data compilations contained in the Louisiana Water Quality Data Summary. A dissolved to total metal conversion will be implemented. Hardness and TSS are a function of the conversion. This involves determining a linear partition coefficient for the metal of concern and using this to determine the fraction of metal dissolved, so that the dissolved metal ambient criteria may be translated to a total effluent limit. The average hardness value used for the analysis is 119.0 mg/l CaCO₃ (USGS data). The 15th percentile TSS value is 4.0 mg/l. The formula for converting dissolved metals to total metals for streams and lakes are provided below.

K _p	=	Linear partition coefficient
K _{po}	=	found in Table A below
α	=	found in Table A below
TSS	=	total suspended solids concentration found in receiving stream or approximation thereof (nearest most representative site), lowest 15th percentile, units in mg/l
C _D /C _T	=	Fraction of metal dissolved

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Cr = Dissolved criteria value for metal in water quality standards

$$K_p = K_{po} \times TSS^\alpha$$

$$K_p = (1.25 \times 10^6) \times 4.0^{(-0.7)}$$

$$\text{then, } \frac{C_D}{C_T} = \frac{1}{1 + (K_p)(TSS)(10^{-6})}$$

$$\frac{C_D}{C_T} = \frac{1}{1 + (473,661.43)(4.0)(10^{-6})}$$

$$= 0.35$$

therefore,

$$\text{Total Metal} = \frac{Cr}{(C_D/C_T)}$$

TABLE A

LINEAR PARTITION COEFFICIENTS
FOR PRIORITY METALS IN STREAMS AND LAKES

(Delos et. al, 1984) (*1)

METAL	STREAMS		LAKES	
	K_{po}	α	K_{po}	α
Arsenic	0.48×10^6	-0.73	0.48×10^6	-0.73
Cadmium	4.00×10^6	-1.13	3.52×10^6	-0.92
Chromium III (*2)	3.36×10^6	-0.93	2.17×10^6	-0.27
Copper	1.04×10^6	-0.74	2.85×10^6	-0.9
Lead	2.80×10^6	-0.8	2.04×10^6	-0.53
Mercury	2.90×10^6	-1.14	1.97×10^6	-1.17
Nickel	0.49×10^6	-0.57	2.21×10^6	-0.76
Zinc	1.25×10^6	-0.7	3.34×10^6	-0.68

(*1) Delos, C. G., W. L. Richardson, J. V. DePinto, R. B. Ambrose, P. W. Rogers, K. Rygwelski, J. P. St. John, W. J. Shaughnessey, T. A. Faha, W. N. Christie. Technical Guidance for performing Waste Load Allocations, Book II: Streams and Rivers. Chapter 3: Toxic Substances, for the U. S. Environmental Protection Agency. (EPA-440/4-84-022).

(*2) Linear partition coefficients shall not apply to the Chromium VI numerical criterion. The approved analytical method for Chromium VI measures only the dissolved form. Therefore, permit limits for Chromium VI shall be expressed in the dissolved form. See 40 CFR 122.45(c)(3).

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$$\text{WLA}_{a,c,h} = (\text{Cr}/\text{Dilution factor}) - (\text{FsQrCu}/\text{Qe})$$

$$\text{WLA}_{\text{acute}} = (383.27/0.988) - [(0.1)(0.872)(0)/1.4] = 387.93$$

$$\text{WLA}_{\text{chronic}} = (349.98/0.895) - [(1.0)(0.872)(0)/1.4] = 391.04$$

iv. Calculation of Long Term Averages (LTA's) and Permit Limits.

Comparison of the reported effluent data (converted to the 95th percentile) to the calculated effluent limitations. Long term averages are listed in the Appendix B-1 in Columns 15-17.

Long term averages are calculated for each WLA (based on aquatic and human health criteria). The LTA's are calculated as follows:

$$\text{LTA}_a = \text{WLA}_a \times 0.32$$

$$\text{LTA}_c = \text{WLA}_c \times 0.53$$

$$\text{LTA}_h = \text{WLA}_h$$

$$\text{LTA}_{\text{acute}} = 387.93 \times 0.32 = 124.14$$

$$\text{LTA}_{\text{chronic}} = 391.04 \times 0.53 = 207.25$$

A comparison of each LTA is made and the lowest (most restrictive) is selected to calculate the effluent limitations. The most limiting LTA is listed in Appendix B-1, Column 18.

Calculation of permit limits if aquatic life LTA is more limiting:

$$\text{Daily Average} = \text{Min}(\text{LTA}_a, \text{LTA}_c) \times 1.31$$

$$\text{Daily Maximum} = \text{Min}(\text{LTA}_a, \text{LTA}_c) \times 3.11$$

$$\text{Daily Average} = 124.14 \times 1.31 = 162.62 \mu\text{g/l}$$

$$\text{Daily Maximum} = 124.14 \times 3.11 = 386.08 \mu\text{g/l}$$

If human health LTA is more limiting:

$$\text{Daily Average} = \text{LTA}_h$$

$$\text{Daily Maximum} = \text{LTA}_h \times 2.38$$

The resulting allowable effluent concentration is converted to a mass value using the following formula:

$$\text{lbs/day} = (0.16262 \text{ mg/l}) \times 8.34 \times 1.1 \text{ MGD}$$

$$= 1.49$$

Comparison of the reported effluent data (converted to 95th percentile) is made to the calculated effluent limitations. Water Quality Based limits are listed in Appendix B-1, Columns 19-22.

In accordance with the State of Louisiana's implementation procedures, the reported effluent concentration is compared to the calculated daily average concentration. If the effluent concentration is greater than the calculated daily average concentration, then a reasonable potential exists and an effluent limitation for the pollutant of concern is imposed in the permit. (Please refer to Appendix B-1 for the calculated daily average concentration listed in Column 19 and the effluent concentration listed in Column 3.)

Appendix 1
Page 5

The discharge is considered to pose a reasonable potential to cause a water quality excursion if the estimated 95th percentile of a pollutant in the effluent will result in an instream waste concentration, which is above the applicable State water quality criterion. The 95th percentile of possible effluent concentrations are estimated as follows:

$$C_{95} = C_{\text{mean}} \cdot \exp(1.645 \cdot \sigma - 0.5 \cdot \sigma^2)$$

where: 1.645 = normal distribution factor at 95th percentile

$$\sigma^2 = \ln(\text{CV}^2 + 1)$$

$$\begin{aligned} \text{if CV is assumed} &= 0.6, \\ \sigma^2 &= .307 \end{aligned}$$

The ratio of the estimated 95th percentile value to the mean (C_{95}/C_{mean}) is calculated :

$$C_{95}/C_{\text{mean}} = 2.13$$

Based upon review of the permittee's effluent data, there are no pollutant(s) present or potentially present in the effluent discharge in such concentrations which would cause an exceedance of Louisiana's Water Quality Standards. However, a limit for cooper will remain in the permit. A summary of the evaluation of the permittee's effluent analysis of the toxic pollutants is listed in Appendix B-1. As per LAC 33:IX.2709.F.1, all pollutants limited in permits shall have limitations, standards, or prohibitions expressed in terms of mass. Consequently, water quality-based limitations as seen in the permit are expressed in terms of mass.

wsqsmcdh wk4 Date 03/04 Appendix B-1 Page 1
 Developer Bruce Fielding Time 10:46 AM
 Software Lotus 4.0 LA0038709, AI 19807
 Revision date: 02/14/05

Water Quality Screen for City of DeQuincy WWTF

Input variables:

Receiving Water Characteristics:		Dilution:		Toxicity Dilution Series	
		ZID F5 =	0.1	Biomonitoring dilution =	0.894847
Receiving Water Name =	Buxton Creek			Dilution Series Factor	0.75
Critical flow (Qr) cfs =	0.2	MZ F5 =	1		
Harm. mean/avg tidal cfs =		Critical Qr (MGD) =	0.12926	Percent Effluent	
Drinking Water = 1 HHNPCR = 2		Harm. Mean (MGD) =	0.12926	Dilution No. 1	89.485%
Marine, 1=y, 0=n		ZID Dilution =	0.988386	Dilution No. 2	67.1135%
Rec. Water Hardness =	119	MZ Dilution =	0.894847	Dilution No. 3	50.3352%
Rec. Water TSS =	4	HHnc Dilution =	0.894847	Dilution No. 4	37.7514%
Fisch./Specific = 1, Stream = 0		HHc Dilution =	0.894847	Dilution No. 5	28.3135%
Diffuser Ratio =		ZID Upstream =	0.011751		
		MZ Upstream =	0.117509	Partition Coefficients; Dissolved-->Total	
Effluent Characteristics:		MZhhac Upstream =	0.117509		
Permittee =	City of DeQuincy WWTF			METALS	FW
Permit Number =	LA0038709, AI 19807			Total Arsenic	1.697907
Facility flow (Qef) MGD =	1.1	MZhhc Upstream =	0.117509	Total Cadmium	4.340352
		ZID Hardness =	---	Chromium III	4.702401
Outfall Number =	001	MZ Hardness =	---	Chromium VI	1
Eff. data, 2=lbs/day		ZID TSS =	---	Total Copper	2.491313
WQBL, 2=lbs/day		MZ TSS =	---	Total Lead	4.694622
Effluent Hardness =	N/A	Multipliers:		Total Mercury	3.388414
Effluent TSS =	N/A	WLAa --> LTAA	0.32	Total Nickel	1.889269
WQBL ind. 0=y, 1=n		WLAc --> LTAc	0.53	Total Zinc	2.894646
Acute Chr. ratio 0=n, 1=y		LTAA ac --> WQBL avg	1.31		
Aquatic, acute only 1=y, 0=n		LTAA ac --> WQBL max	3.11	Aquatic Life, Dissolved	
		LTAA h --> WQBL max	2.38	Metal Criteria, ug/l.	
Page Numbering/Labeling		WQBL limit/report	2.13	METALS	ACUTE CHRONIC
Appendix	Appendix B-1	WLA Fraction	1	Arsenic	339.8 150
Page Numbers 1=y, 0=n	1	WQBL Fraction	1	Cadmium	38.40101 1.172479
Input Page # 1=y, 0=n	1			Chromium III	632.7587 205.2604
		Conversions:		Chromium VI	15.712 10.582
Fischer/Site Specific inputs:		ug/L --> lbs/day Qef	0.009174	Copper	21.70772 14.2526
Pipe = 1, Canal = 2, Specific = 3		ug/L --> lbs/day Qeo	0	Lead	78.00709 3.039824
Pipe width, feet		ug/L --> lbs/day Qr	0.001668	Mercury	1.734 0.012
ZID plume dist., feet		lbs/day --> ug/L Qeo	109.0037	Nickel	1639.811 182.1142
MZ plume dist., feet		lbs/day --> ug/L Qef	109.0037	Zinc	132.6224 121.1043
HHnc plume dist., feet		diss --> tot 1=y, 0=n	1		
HHc plume dist., feet		Cu diss --> tot 1=y, 0=n	1	Site Specific Multiplier Values:	
		cfs --> MGD	0.6463	CV =	---
Fischer/site specific dilutions:				N =	---
1 Dilution =	---	Receiving Stream:		WLAa --> LTAA	---
F/specific MZ Dilution =	---	Default Hardness =	25	WLAc --> LTAc	---
F/specific HHnc Dilution =	---	Default TSS =	10	LTAA ac --> WQBL avg	---
F/specific HHc Dilution =	---	99 Crit., 1=y, 0=n	1	LTAA ac --> WQBL max	---
				LTAA h --> WQBL max	---

Appendix B-1
City of DeQuincy WWTF
LA6038709 : At 19807

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(*1) Toxic Parameters	(*2) Cu Effluent Instream Conc ug/L	(*3) Effluent i/Tech {Avg} ug/L	(*4) Effluent i/Tech {Max} ug/L	(*5) MQL Effluent 1=No 95% 0=95 % ug/L	(*6) 95th % estimate Non-Tech ug/L	(*7)	(*8) Numerical Criteria Acute FW ug/L	(*9) Chronic FW ug/L	(*10) HHNDW ug/L	(*11) HH Carcinogen Indicator "C"
NONCONVENTIONAL										
Total Phenols (AAP)				5			700	350	50	
2-Chlorophenol				10						
4-Chlorophenol				10			383	192		
2,3-Dichlorophenol				10						
2,5-Dichlorophenol				10						
2,6-Dichlorophenol				10						
3,4-Dichlorophenol				10						
2,4-Dichlorophenoxy- acetic acid (2,4-D)				---						
2-(2,4,5-Trichlorophen- oxy) propionic acid (2,4,5-TP, Silvex)				---						
METALS AND CYANIDE										
Total Arsenic				10			576.9487	254.686		
Total Cadmium				1			166.6739	5.088969		
Chromium III				10			2975.485	965.2166		
Chromium VI				10			15.712	10.582		
Total Copper				10			54.08075	35.50768		
Total Lead				5			366.2138	14.27083		
Total Mercury				0.2			5.87551	0.040661		
Total Nickel				40			3098.208	344.0809		
Total Zinc		66		20	0 140.58		383.8948	350.5541		
Total Cyanide				20			45.9	5.4	12844	
DIOXIN										
2,3,7,8 TCDD; dioxin				1.0E-05					7.2E-07	C
VOLATILE COMPOUNDS										
Benzene				10			2249	1125	12.5	C
Bromoform				10			2930	1465	34.7	C
Bromodichloromethane				10					3.3	C
Carbon Tetrachloride				10			2730	1365	1.2	C
Chloroform				10			2890	1445	70	C
Dibromochloromethane				10					5.08	C
1,2-Dichloroethane				10			11800	5900	6.8	C
1,1-Dichloroethylene				10			1160	580	0.58	C
1,3-Dichloropropylene				10			606	303	162.79	
Ethylbenzene				10			3200	1600	8100	
Methyl Chloride				50			55000	27500		
Methylene Chloride				20			19300	9650	87	C
1,1,2,2-Tetrachloro- ethane				10			932	466	1.8	C

Appendix B-1
City of DeQuincy WWTF
1A9058709; At 19807

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(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic	WL.Aa	WL.Ac	WLAh	LT.Aa	LT.Ac	LT.Ah	Lumining	WQBI.	WQBI.	WQBI.	WQBI.	Need
Parameters	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A.C.HH	Avg	Max	Avg	Max	WQBI
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	001	001	001	001	lbs/day
NONCONVENTIONAL												
Total Phenols (4AAP)	708.2256	391.1282	55.87545	226.6322	207.2979	55.87545	55.87545	55.87545	132.9836	0.512601	1.219991	no
3-Chlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
4-Chlorophenol	387.5006	214.5617	---	124.0002	113.7177	---	113.7177	148.9702	353.6621	1.366653	3.244496	no
2,3-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,5-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,6-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
3,4-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,4-Dichlorophenoxy- acetic acid (2,4-D)	---	---	---	---	---	---	---	---	---	---	---	no
2-(2,4,5-Trichlorophen- oxy) propionic acid (2,4,5-TP, Silvex)	---	---	---	---	---	---	---	---	---	---	---	no
METALS AND CYANIDE												
Total Arsenic	583.7284	284.6139	---	186.7931	150.8454	---	150.8454	197.6075	469.1292	1.812851	4.303791	no
Total Cadmium	168.6324	5.686969	---	53.96238	3.014094	---	3.014094	3.948463	9.373831	0.036223	0.085996	no
Chromium III	3010.45	1078.638	---	963.3439	571.6783	---	571.6783	748.8986	1777.92	6.870396	16.31063	no
Chromium VI	15.89663	11.82548	---	5.086922	6.267505	---	5.086922	6.663867	15.82033	0.061134	0.143136	no
Total Copper	54.71624	39.68016	---	17.5092	21.03048	---	17.5092	22.93705	54.45361	0.210424	0.499557	no
Total Lead	370.5172	15.94778	---	118.5655	8.452323	---	8.452323	11.07254	26.28672	0.10158	0.241154	no
Total Mercury	5.944552	0.045439	---	1.902257	0.024083	---	0.024083	0.031548	0.074897	0.000289	0.000687	no
Total Nickel	3134.615	384.5135	---	1003.077	203.7922	---	203.7922	266.9677	633.7936	2.449162	5.814423	no
Total Zinc	388.4059	391.7474	---	124.2899	207.6261	---	124.2899	162.8197	386.5415	1.493708	3.546132	no
Total Cyanide	46.42937	6.034549	14353.29	14.8606	3.198311	14353.29	3.198311	4.189787	9.946747	0.038437	0.091251	no
DIOXIN												
2,3,7,8 TCDD: dioxin	---	---	8.05E-07	---	---	8.05E-07	8.05E-07	8.05E-07	1.91E-06	7.38E-09	1.76E-08	no
VOLATILE COMPOUNDS												
Benzene	2275.428	1257.198	13.96886	728.1369	666.3148	13.96886	13.96886	13.96886	33.2459	0.12815	0.304998	no
Bromoform	2964.43	1637.151	38.77757	948.6177	867.6899	38.77757	38.77757	38.77757	92.29061	0.355745	0.846674	no
Bromodichloromethane	---	---	3.68778	---	---	3.68778	3.68778	3.68778	8.776916	0.033832	0.080519	no
Carbon Tetrachloride	2762.08	1525.4	1.341011	883.8656	808.462	1.341011	1.341011	1.341011	3.191606	0.012302	0.02928	no
Chloroform	2923.96	1614.801	78.22564	935.6672	855.8443	78.22564	78.22564	78.22564	186.177	0.717642	1.707988	no
Dibromochloromethane	---	---	5.676946	---	---	5.676946	5.676946	5.676946	13.51113	0.05208	0.123951	no
1,2-Dichloroethane	11938.66	6593.304	7.599062	3820.371	3494.451	7.599062	7.599062	7.599062	18.08577	0.069714	0.165919	no
1,1-Dichloroethylene	1173.631	648.1553	0.648155	375.5619	343.5223	0.648155	0.648155	0.648155	1.54261	0.005946	0.014152	no
1,3-Dichloropropylene	613.1211	338.6053	181.9193	196.1987	179.4608	181.9193	179.4608	235.0936	558.123	2.156749	5.120221	no
Ethylbenzene	3237.603	1788.015	9051.824	1036.033	947.6477	9051.824	947.6477	1241.418	2947.184	11.38877	27.03747	no
Methyl Chloride	55646.3	30731.5	---	17806.82	16287.7	---	16287.7	21336.88	50654.73	195.7445	464.7065	no
Methylene Chloride	19526.79	10783.96	97.22329	6248.574	5715.5	97.22329	97.22329	97.22329	231.3914	0.891926	2.122785	no
1,1,2,2-Tetrachloro- ethane	942.9518	520.7592	2.011516	301.7446	276.0024	2.011516	2.011516	2.011516	4.787409	0.018454	0.04392	no

[illegible]

(*)1	(*)12	(*)13	(*)14	(*)15	(*)16	(*)17	(*)18	(*)19	(*)20	(*)21	(*)22	(*)23
Toxic Parameters	WL _{Aa}	WL _{Ac}	WL _{Ah}	LT _{Aa}	LT _{Ac}	LT _{Ah}	Limiting A.C./HH	WQBL	WQBL	WQBL	WQBL	Need
	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A.C./HH	Avg	Max	Avg	Max	WQBL
	001	001	001	001	001	001	001	001	001	001	001	001
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
Tetrachloroethylene	1305.159	720.7934	2.793773	417.6508	382.0205	2.793773	2.793773	2.793773	6.649179	0.02563	0.061	no
Toluene	1784.924	709.6183	51678.92	411.1756	376.0977	51678.92	376.0977	492.688	1169.664	4.519919	10.7305	no
1,1,1-Trichloroethane	5342.045	2950.224	---	1709.454	1563.619	---	1563.619	2048.541	4862.854	18.79148	44.61182	no
1,1,2-Trichloroethane	1821.152	1005.758	7.710813	582.7685	533.0518	7.710813	7.710813	7.710813	18.35173	0.070739	0.168359	no
Trichloroethylene	3945.829	2179.143	23.46769	1262.665	1154.946	23.46769	23.46769	23.46769	55.8531	0.215293	0.512396	no
Vinyl Chloride	---	---	40.00683	---	---	40.00683	40.00683	40.00683	95.21624	0.367023	0.873514	no
ACID COMPOUNDS												
2-Chlorophenol	261.0317	144.1587	141.2531	83.53016	76.4041	141.2531	76.4041	100.0894	257.6167	0.91822	2.179896	no
2,4-Dichlorophenol	204.3737	112.8684	259.9326	65.39958	59.82026	259.9326	59.82026	78.36451	186.041	0.718916	1.70674	no
BASE NEUTRAL COMPOUNDS												
Benzidine	252.9377	139.6886	0.00019	80.94007	74.03498	0.00019	0.00019	0.00019	0.000452	1.74E-06	4.15E-06	no
Hexachlorobenzene	---	---	0.000279	---	---	0.000279	0.000279	0.000279	0.000665	2.56E-06	6.1E-06	no
Hexachlorobutadiene	5.15993	1.139859	0.122926	1.651177	0.604125	0.122926	0.122926	0.122926	0.292564	0.001128	0.002684	no
PESTICIDES												
Aldrin	3.035253	---	0.000447	0.971281	---	0.000447	0.000447	0.000447	0.001064	4.1E-06	9.76E-06	no
Hexachlorocyclohexane (gamma BHC, Lindane)	5.36228	0.234677	0.223502	1.71593	0.124379	0.223502	0.124379	0.162936	0.386818	0.001495	0.003549	no
Chlordane	2.428202	0.004805	0.000212	0.777025	0.002547	0.000212	0.000212	0.000212	0.000505	1.95E-06	4.64E-06	no
4,4'-DDT	1.112926	0.001118	0.000212	0.356136	0.000592	0.000212	0.000212	0.000212	0.000505	1.95E-06	4.64E-06	no
4,4'-DDE	53.11692	11.73385	0.000212	16.99747	6.218938	0.000212	0.000212	0.000212	0.000505	1.95E-06	4.64E-06	no
4,4'-DDD	0.030353	0.006705	0.000302	0.009713	0.003554	0.000302	0.000302	0.000302	0.000718	2.77E-06	6.59E-06	no
Dieldrin	0.24019	0.062245	5.59E-05	0.076861	0.03299	5.59E-05	5.59E-05	5.59E-05	0.000133	5.13E-07	1.22E-06	no
Endosulfan	0.222585	0.062581	0.715206	0.071227	0.033168	0.715206	0.033168	0.04345	0.103151	0.000399	0.000946	no
Endrin	0.087415	0.041907	0.290552	0.027973	0.02221	0.290552	0.02221	0.029096	0.069075	0.000267	0.000634	no
Heptachlor	0.52611	0.004247	7.82E-05	0.168355	0.002251	7.82E-05	7.82E-05	7.82E-05	0.000186	7.18E-07	1.71E-06	no
Toxaphene	0.738578	0.000224	0.000268	0.236345	0.000118	0.000268	0.000118	0.000155	0.000368	1.42E-06	3.38E-06	no
Other Parameters:												
Fecal Col (col/100ml)	---	---	---	---	---	---	---	---	---	---	---	no
Chlorine	19.22327	12.2926	---	6.151446	6.515078	---	6.151446	8.058394	19.131	0.073928	0.175508	no
Ammonia	---	4470.036	---	---	2369.119	---	2369.119	3103.546	7367.961	28.47193	67.59367	no
Chlorides	---	---	---	---	---	---	---	---	---	---	---	no
Sulfates	---	---	---	---	---	---	---	---	---	---	---	no
TDS	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no

wqsmode wk1 Date 05/04 Appendix B-1 Page 1
 Developer: Bruce Fielding Time: 10:45 AM
 Software Lotus 4.0 LA0038709, AI 19807
 Revision date: 02/14/05

Water Quality Screen for City of DeQuincy WWTF

Input variables

Receiving Water Characteristics:

Receiving Water Name= Buxton Creek
 Critical flow (Q_{cr}) cfs= 0.2 MZ F_s= 1
 Harm. mean avg tidal cfs= Critical Q_r (MGD)= 0.12926
 Drinking Water=1 HHN/PCR=2 Harm. Mean (MGD)= 0.12926
 Marine, 1=y, 0=n ZID Dilution = 0.888386
 Rec. Water Hardness= 119 MZ Dilution = 0.894847
 Rec. Water TSS= 4 HHnc Dilution= 0.894847
 Fish/Specific=1, Stream=0 HHc Dilution= 0.894847
 Diffuser Ratio= ZID Upstream = 0.011751
 MZ Upstream = 0.117509
 MZhhnc Upstream= 0.117509

Effluent Characteristics:

Permittee= City of DeQuincy WWTF
 Permit Number= LA0038709, AI 19807
 Facility flow (Q_{ef}) MGD= 1.1 MZhhc Upstream= 0.117509
 Outfall Number = 001 ZID Hardness= ---
 Eff. data, 2=lbs/day MZ Hardness= ---
 MQL, 2=lbs/day ZID TSS= ---
 Effluent Hardness= N/A MZ TSS= ---
 Effluent TSS= N/A Multipliers:
 WQBL ind. 0=y, 1=n WLAa --> LTAA 0.32
 Acute Ch. ratio 0=n, 1=y WLAc --> LTAc 0.53
 Aquatic, acute only 1=y, 0=n LTA ac-->WQBL avg 1.34
 LTA ac-->WQBL max 3.11
 LTA h --> WQBL max 2.38
 WQBL limit/report 2.13
 Page Numbering/Labelling WLA Fraction 1
 Appendix Appendix B-1 WQBL Fraction 1
 Page Numbers 1=y, 0=n
 Input Page # 1=y, 0=n

Fischer/Site Specific inputs:

Pipe=1 Canal=2, Specific=3 ug/L-->lbs/day Q_{ef} 0.009174
 Pipe width, feet ug/L-->lbs/day Q_{eo} 0
 ZID plume dist., feet ug/L-->lbs/day Q_r 0.001668
 MZ plume dist., feet lbs/day-->ug/L Q_{eo} 109.0037
 HHnc plume dist., feet lbs/day-->ug/L Q_{ef} 109.0037
 HHc plume dist., feet diss-->tot 1=y, 0=n 1
 Cu diss-->tot 1=y, 0=n 1
 cfs-->MGD 0.6463

Fischer/site specific dilutions:

Dilution = --- Receiving Stream:
 F/specific MZ Dilution = --- Default Hardness= 25
 F/specific HHnc Dilution= --- Default TSS= 10
 F/specific HHc Dilution= --- 99 Crit., 1=y, 0=n 1

Toxicity Dilution Series:

Biomonitoring dilution: 0.894847
 Dilution Series Factor: 0.75
 Dilution No. 1 89.485%
 Dilution No. 2 67.1135%
 Dilution No. 3 50.3352%
 Dilution No. 4 37.7514%
 Dilution No. 5 28.3135%

Partition Coefficients: Dissolved-->Total

METALS FW
 Total Arsenic 1.697907
 Total Cadmium 4.340352
 Chromium III 4.702401
 Chromium VI 1
 Total Copper 2.491313
 Total Lead 4.694622
 Total Mercury 3.388414
 Total Nickel 1.889369
 Total Zinc 2.894646

Aquatic Life, Dissolved

Metal Criteria, ug/L

METALS	ACUTE	CHRONIC
Arsenic	339.8	150
Cadmium	38.40101	1.172479
Chromium III	632.7587	205.2604
Chromium VI	15.712	10.582
Copper	21.70772	14.2526
Lead	78.00709	3.039824
Mercury	1.734	0.012
Nickel	1639.811	182.1142
Zinc	132.6224	121.1043

Site Specific Multiplier Values:

CV = ---
 N = ---
 WLAa --> LTAA ---
 WLAc --> LTAc ---
 LTA ac-->WQBL avg ---
 LTA ac-->WQBL max ---
 LTA h --> WQBL max ---

Appendix B-1
City of DeQuincy WWT
LA0038709, AI 19807

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(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)	(*10)	(*11)
Toxic	Cu Effluent	Effluent		MOI, Effluent	95th %		Numerical Criteria			
Parameters	Instream	/Tech	/Tech		1=No 95%	estimate	Acute	Chronic	HHH/DW	Carcinogen
	Conc.	(Avg)	(Max)		0=95 %	Non-Tech	FW	FW	Indicator	
	ug/L	lbs/day	lbs/day	lbs/day		lbs/day	ug/L	ug/L	ug/L	"C"
NONCONVENTIONAL										
Total Phenols (4AAP)				0.04587			700	350	50	
3-Chlorophenol				0.09174						
4-Chlorophenol				0.09174			383	192		
2,3-Dichlorophenol				0.09174						
2,5-Dichlorophenol				0.09174						
2,6-Dichlorophenol				0.09174						
3,4-Dichlorophenol				0.09174						
2,4-Dichlorophenoxy-										
acetic acid (2,4-D)				---						
2-(2,4,5-Trichlorophen-										
oxy) propionic acid										
(2,4,5-TP, Silves)				---						
METALS AND CYANIDE										
Total Arsenic				0.09174			576.9487	254.686		
Total Cadmium		0.0032		0.009174	0	0.006816	166.6739	5.088969		
Chromium III				0.09174			2975.483	965.2166		
Chromium VI				0.09174			15.712	10.582		
Total Copper		0.08		0.09174		0.1704	54.08075	35.50768		
Total Lead		0.013		0.04587	0	0.02769	366.2138	14.17083		
Total Mercury				0.001833			5.87551	0.040661		
Total Nickel				0.36696			3098.208	344.0809		
Total Zinc				0.18348			383.8948	350.5541		
Total Cyanide				0.18348			45.9	5.4	128.44	
DIOXIN										
2,3,7,8 TCDD, dioxin				9.2E-08					7.2E-07	C
VOLATILE COMPOUNDS										
Benzene				0.09174			2249	1125	12.5	C
Bromoform				0.09174			2930	1465	34.7	C
Bromodichloromethane				0.09174					3.3	C
Carbon Tetrachloride				0.09174			2730	1365	1.2	C
Chloroform				0.09174			2890	1445	70	C
Dibromochloromethane				0.09174					5.08	C
1,2-Dichloroethane				0.09174			11800	5900	6.8	C
1,1-Dichloroethylene				0.09174			1160	580	0.58	C
1,3-Dichloropropylene				0.09174			606	303	162.79	
Ethylbenzene				0.09174			3200	1600	8100	
Methyl Chloride				0.4587			55000	27500		
Methylene Chloride				0.18348			19300	9650	87	C
1,1,2,2-Tetrachloro-										
cithane				0.09174			932	466	1.8	C

Appendix B-1
City of DeQuincy WWTF
LA0058709 : AI 19807

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(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22) (*23)
Toxic	WLAa	WLAc	WLAh	LTAA	LTAc	LTAh	Limiting	WQBL	WQBL	WQBL	WQBL Need
Parameters	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A.C.HH	Av g	Max	Av g	Max WQBL
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	001	001	001	001
								ug/L	ug/L	lbs/day	lbs/day
NONCONVENTIONAL											
Total Phenols (4AAP)	708.2256	391.1282	55.87545	226.6322	207.2979	55.87545	55.87545	55.87545	132.9836	0.512601	1.219991 no
3-Chlorophenol	---	---	---	---	---	---	---	---	---	---	no
4-Chlorophenol	387.5006	214.5617	---	124.0002	113.7177	---	113.7177	148.9702	353.6621	1.366053	3.244496 no
2,3-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	no
2,5-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	no
2,6-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	no
3,4-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	no
2,4-Dichlorophenoxy-	---	---	---	---	---	---	---	---	---	---	---
acetic acid (2,4-D)	---	---	---	---	---	---	---	---	---	---	no
2,4,5-Trichlorophen-	---	---	---	---	---	---	---	---	---	---	---
oxy) propionic acid	---	---	---	---	---	---	---	---	---	---	---
(2,4,5-TP, Silves)	---	---	---	---	---	---	---	---	---	---	no
METALS AND CYANIDE											
Total Arsenic	583.7284	284.6139	---	186.7931	150.8454	---	150.8454	197.6075	469.1292	1.812851	4.303791 no
Total Cadmium	168.6324	5.686969	---	53.96238	3.014094	---	3.014094	3.948463	9.373831	0.036223	0.085996 no
Chromium III	3010.45	1078.638	---	963.3439	571.6783	---	571.6783	748.8986	1777.92	0.870396	16.31063 no
Chromium VI	15.89663	11.82548	---	5.086922	6.267505	---	5.086922	6.663867	15.82033	0.061134	0.145136 no
Total Copper	54.71624	39.68016	---	17.5092	21.03048	---	17.5092	22.93705	54.45361	0.210424	0.499557 no
Total Lead	370.5172	15.94778	---	118.5655	8.452323	---	8.452323	11.07254	26.28672	0.10158	0.241154 no
Total Mercury	5.943552	0.045439	---	1.902257	0.024083	---	0.024083	0.031518	0.074897	0.000289	0.000687 no
Total Nickel	3134.615	384.5135	---	1003.077	203.7922	---	203.7922	266.9677	633.7936	2.449162	5.814423 no
Total Zinc	388.4059	391.7474	---	124.2899	207.6261	---	124.2899	162.8197	386.5415	1.493708	3.546132 no
Total Cyanide	46.43957	6.034549	14353.29	14.8606	3.198311	14353.29	3.198311	4.189787	9.946747	0.038437	0.091251 no
DIOXIN											
2,3,7,8 TCDD: dioxin	---	---	8.05E-07	---	---	8.05E-07	8.05E-07	8.05E-07	1.91E-06	7.38E-09	1.76E-08 no
VOLATILE COMPOUNDS											
Benzene	2275.428	1257.198	13.96886	728.1369	666.3148	13.96886	13.96886	13.96886	33.2459	0.12815	0.304998 no
Bromoform	2964.43	1637.151	38.77757	948.6177	867.6899	38.77757	38.77757	38.77757	92.29061	0.355745	0.846674 no
Bromodichloromethane	---	---	3.68778	---	---	3.68778	3.68778	3.68778	8.776916	0.033832	0.080519 no
Carbon Tetrachloride	2762.08	1525.4	1.341011	883.8656	808.462	1.341011	1.341011	1.341011	3.191606	0.012302	0.02928 no
Chloroform	2923.96	1614.801	78.22564	935.6672	855.8443	78.22564	78.22564	78.22564	186.177	0.717642	1.707988 no
Dibromochloromethane	---	---	5.676946	---	---	5.676946	5.676946	5.676946	13.51113	0.05208	0.123951 no
1,2-Dichloroethane	11938.66	6593.304	7.599062	3820.371	3494.451	7.599062	7.599062	7.599062	18.08577	0.069714	0.165919 no
1,1-Dichloroethylene	1173.631	648.1553	0.648155	375.5619	343.5223	0.648155	0.648155	0.648155	1.54261	0.005946	0.014152 no
1,3-Dichloropropylene	613.1211	338.6053	181.9193	196.1987	179.4608	181.9193	179.4608	235.0936	558.123	2.156749	5.120221 no
Ethylbenzene	3237.603	1788.015	9051.824	1036.033	947.6477	9051.824	947.6477	1241.418	2947.184	11.38877	27.03747 no
Methyl Chloride	55646.3	30731.5	---	17806.82	16287.7	---	16287.7	21336.88	50654.73	195.7445	464.7065 no
Methylene Chloride	19526.79	10783.96	97.22329	6248.574	5715.5	97.22329	97.22329	97.22329	231.3914	0.891926	2.127785 no
1,1,2,2-Tetrachloro-	---	---	---	---	---	---	---	---	---	---	---
ethane	942.9518	520.7592	2.011516	301.7446	276.0024	2.011516	2.011516	2.011516	4.787409	0.018454	0.04392 no

	(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic Parameters		Wt.Aa	Wt.Ac	Wt.Ah	Lt.Aa	Lt.Ac	Lt.Ah	Limiting A.C.HH	WQBL	WQHL	WQBL	WQBL	Need
		Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A.C.HH	Avg	Max	Avg	Max	WQBL
									001	001	001	001	
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
Tetrachloroethylene		1505.159	720.7934	2.793773	417.6508	382.0205	2.793773	2.793773	2.793773	6.649179	0.02563	0.061	no
Toluene		1284.924	709.6183	51628.92	411.1756	376.0977	51628.92	376.0977	492.688	1169.664	4.519919	10.7305	no
1,1,1-Trichloroethane		5312.045	2950.224	---	1709.451	1563.619	---	1563.619	2048.331	4862.851	18.79148	44.61182	no
1,1,2-Trichloroethane		1821.152	1005.758	7.710813	582.7685	523.0518	7.710813	7.710813	7.710813	18.35173	0.070739	0.168359	no
Trichloroethylene		3945.829	2179.143	23.46769	1262.665	1154.946	23.46769	23.46769	23.46769	55.8531	0.215293	0.512396	no
Vinyl Chloride		---	---	40.00683	---	---	40.00683	40.00683	40.00683	95.21624	0.367023	0.873514	no
ACID COMPOUNDS													
2-Chlorophenol		261.0317	144.1587	141.2531	83.53016	76.4041	141.2531	76.4041	100.0894	237.6167	0.91822	2.179896	no
2,4-Dichlorophenol		204.3737	112.8684	259.9326	65.39958	59.82026	259.9326	59.82026	78.36454	186.041	0.718916	1.70674	no
BASE NEUTRAL COMPOUNDS													
Benzenidine		252.9377	139.6886	0.00019	80.94007	74.03498	0.00019	0.00019	0.00019	0.000452	1.74E-06	4.15E-06	no
Hexachlorobenzene		---	---	0.000279	---	---	0.000279	0.000279	0.000279	0.000665	2.56E-06	6.1E-06	no
Hexachlorobutadiene		5.15993	1.139859	0.122926	1.651177	0.604125	0.122926	0.122926	0.122926	0.292564	0.001128	0.002684	no
PESTICIDES													
Aldrin		3.035253	---	0.000447	0.971281	---	0.000447	0.000447	0.000447	0.001064	4.1E-06	9.76E-06	no
Hexachlorocyclohexane (gamma BHC, Lindane)		5.36228	0.234677	0.223502	1.71593	0.124379	0.223502	0.124379	0.162936	0.386818	0.001495	0.005549	no
Chlordane		2.428202	0.004805	0.000212	0.777025	0.002547	0.000212	0.000212	0.000212	0.000505	1.95E-06	4.64E-06	no
4,4'-DDT		1.112926	0.001118	0.000212	0.356136	0.000592	0.000212	0.000212	0.000212	0.000505	1.95E-06	4.64E-06	no
4,4'-DDE		53.11692	11.73385	0.000212	16.99742	6.218938	0.000212	0.000212	0.000212	0.000505	1.95E-06	4.64E-06	no
4,4'-DDD		0.030353	0.006705	0.000302	0.009713	0.003554	0.000302	0.000302	0.000302	0.000718	2.77E-06	6.59E-06	no
Dieldrin		0.24019	0.062245	5.59E-05	0.076861	0.03299	5.59E-05	5.59E-05	5.59E-05	0.000133	5.13E-07	1.22E-06	no
Endosulfan		0.222585	0.062581	0.715206	0.071227	0.033168	0.715206	0.033168	0.04345	0.103151	0.000399	0.000446	no
Endrin		0.087415	0.041907	0.290552	0.027973	0.02221	0.290552	0.02221	0.029096	0.069075	0.000267	0.000634	no
Heptachlor		0.52611	0.004247	7.82E-05	0.168355	0.002251	7.82E-05	7.82E-05	7.82E-05	0.000186	7.18E-07	1.71E-06	no
Toxaphene		0.738578	0.000224	0.000268	0.236345	0.000118	0.000268	0.000118	0.000155	0.000368	1.42E-06	3.38E-06	no
Other Parameters:													
Fecal Col.(col/100ml)		---	---	---	---	---	---	---	---	---	---	---	no
Chlorine		19.22327	12.2926	---	6.151446	6.151078	---	6.151446	8.058394	19.131	0.073928	0.175508	no
Ammonia		---	4470.036	---	---	2369.119	---	2369.119	3103.546	7367.961	28.47193	67.59367	no
Chlorides		---	---	---	---	---	---	---	---	---	---	---	no
Sulfates		---	---	---	---	---	---	---	---	---	---	---	no
TDS		---	---	---	---	---	---	---	---	---	---	---	no
		---	---	---	---	---	---	---	---	---	---	---	no
		---	---	---	---	---	---	---	---	---	---	---	no

WQBL CALCULATIONS FOR CITY OF DEQUINCY DEQUINCY WASTEWATER TREATMENT FACILITY LA0038709, AI 19807, PER20070002

DESIGN CAPACITY (Q_c): 1.1 MGD

CRITICAL LOW FLOW (7Q10): 0.2 cfs

HARDNESS VALUE: 119.0 mg/L

FIFTEENTH PERCENTILE VALUE FOR TSS: 4.0 mg/L

PRIORITY POLLUTANT: ZINC

$$\begin{aligned}
 \bullet \text{ Zn (Acute)} &= e^{(0.8473 [\ln(\text{hardness})] + 0.8604)} \times CF \\
 &= e^{(0.8473 [\ln 119] + 0.8604)} \times 0.978 \\
 &= e^{(0.8473)(4.78) + 0.8604} \times 0.978 \\
 &= e^{4.91} \times 0.978 \\
 &= 135.61 \times 0.978 \\
 &= 132.62 \mu\text{g/L}
 \end{aligned}$$

$$\begin{aligned}
 \bullet \text{ Zn (Chronic)} &= e^{(0.8473 [\ln(\text{hardness})] + 0.7614)} \times CF \\
 &= e^{(0.8473 [\ln 119] + 0.7614)} \times 0.986 \\
 &= e^{(0.8473)(4.78) + 0.7614} \times 0.986 \\
 &= e^{4.811} \times 0.986 \\
 &= 122.82 \times 0.986 \\
 &= 121.10 \mu\text{g/L}
 \end{aligned}$$

DISSOLVED TO TOTAL METAL CONVERSION

$$\frac{C_D}{C_T} = \frac{1}{1 + (K_p)(\text{TSS})(10^{-6})}$$

$$K_p = K_{p0} \times \text{TSS}^a$$

$$\begin{aligned}
 K_p &= 1.25 \times 10^6 \times 4^{(-0.7)} \\
 &= 473,661.43
 \end{aligned}$$

$$\begin{aligned}
 \frac{C_D}{C_T} &= \frac{1}{1 + (473,661.43)(4)(10^{-6})} \\
 &= \frac{1}{2.89} \\
 &= 0.35
 \end{aligned}$$

$$\frac{\text{TOTAL}}{\text{DISSOLVED}} = \frac{C_T}{C_D} = 2.89$$

	DISSOLVED	X	C_T / C_D	=	TOTAL
Acute Criteria	132.62 µg/L	X	2.89	=	383.27 µg/L
Chronic Criteria	121.10 µg/L	X	2.89	=	349.98 µg/L
Human Health _{nc}	5000 µg/L	X	2.89	=	14,450.00 µg/L

DILUTION

	DISSOLVED	TOTAL
ACUTE	132.62 µg/L	383.27 µg/L
CHRONIC	121.10 µg/L	349.98 µg/L
HUMAN HEALTH	5000 µg/L	14,450.00 µg/L

DILUTION CALCULATIONS

$$\text{DILUTION FACTOR} = \frac{Q_e}{Q_r \times F_s + Q_e}$$

- ZID (ACUTE) = $\frac{1.1 \text{ MGD}}{(0.2 \text{ cfs})(0.6463 \text{ MGD/cfs})(0.1 \text{ cfs}) + 1.1 \text{ MGD}} = 0.988$

- MZ (CHRONIC) = $\frac{1.1 \text{ MGD}}{(0.2 \text{ cfs})(0.6463 \text{ MGD/cfs})(1 \text{ cfs}) + 1.1 \text{ MGD}} = 0.895$

- HH (HUMAN HEALTH) = $\frac{1.1 \text{ MGD}}{(0.2 \text{ cfs})(0.6463 \text{ MGD/cfs}) + 1.1 \text{ MGD}} = 0.895$

CONCLUDE THAT:

- 98.8% of effluent at edge of ZID
- 89.5% of effluent at edge of MZ
- 89.5% of effluent at edge of HH_{nc}

WASTELOAD ALLOCATION CALCULATIONS

$$WLA = \frac{C_r}{\text{Dilution}} = \frac{F_s \times C_r \times C_u}{Q_e} \quad C_u = 0$$

- $WLA_{ZID} \text{ (ACUTE)} = \frac{383.27 \mu\text{g/L}}{0.988} = 387.93 \mu\text{g/L}$
- $WLA_{MZ} \text{ (CHRONIC)} = \frac{349.98 \mu\text{g/L}}{0.895} = 391.04 \mu\text{g/L}$
- $WLA_{HH} \text{ (HUMAN HEALTH)} = \frac{14.450 \mu\text{g/L}}{0.895} = 16,145.25 \mu\text{g/L}$

LTA CALCULATIONS

- $LTA_{ZID} \text{ (ACUTE)} = WLA_{ZID} \times 0.32$
 $= 387.93 \mu\text{g/L} \times 0.32 = 124.14 \mu\text{g/L}$
- $LTA_{MZ} \text{ (CHRONIC)} = WLA_{MZ} \times 0.53$
 $= 391.04 \mu\text{g/L} \times 0.53 = 207.25 \mu\text{g/L}$
- $LTA_{HH} \text{ (HUMAN HEALTH)} = WLA_{HH} \times 1$
 $= 16,145.25 \mu\text{g/L} \times 1 = 16,145.25 \mu\text{g/L}$

WQBL CALCULATIONS

- **LIMITING LTA** = 124.14 $\mu\text{g/L}$
- **MONTHLY AVERAGE** = LIMITING LTA $\times 1.31$
 $= 124.14 \mu\text{g/L} \times 1.31$
 $= 162.62 \mu\text{g/L}$
 $= 0.16262 \text{ mg/L} \times 1.1 \text{ MGD} \times 8.34 \text{ lbs/day} = 1.49 \text{ lbs/day}$
- **DAILY MAXIMUM** = LIMITING LTA $\times 3.11$
 $= 124.14 \mu\text{g/L} \times 3.11$
 $= 386.08 \mu\text{g/L}$
 $= 0.038608 \text{ mg/L} \times 1.1 \text{ MGD} \times 8.34 \text{ lbs/day} = 3.54 \text{ lbs/day}$

PRETREATMENT EVALUATION AND RECOMMENDATION

FACILITY NAME: *City of DeQuincy WWTP*

CITY: *DeQuincy*

PARISH: *Calcasieu*

PERMIT #: *LA0038709*

DESIGN FLOW: *1.1 MGD*

ACTUAL FLOW: *0.40 MGD*

OTHER POTWs IN SYSTEM: *N/A*

SIGNIFICANT INDUSTRIES LISTED IN MANUFACTURERS GUIDE:

Industry Name	Type of Industry	Direct or Indirect Discharger
Caraustar Industrial	Manufactures tubes	N/A ¹
Paragon Plastic Sheet Inc.	Manufactures unsupported plastics film and sheet	Indirect ²
S & I Wood Inc.	Sawing and planing mill	N/A ³
Southwestern Graphite/Asbury of Louisiana	Manufactures carbon and graphite products	Direct ⁴
United Oilfield Service Corp.	Oil and gas well construction, repair, and dismantling service	Indirect ²

STANDARD LANGUAGE RECOMMENDATION AND JUSTIFICATION:

Due to the absence of pretreatment categorical standards for the indirect discharges listed above or the discharge is of sanitary wastewater only, it is recommended that LDEQ Option 1 Pretreatment Language be included in LPDES Permit LA0038709. This language is established for municipalities that do not have either an approved or required Pretreatment program. This recommendation is in accordance with 40 CFR Part 403 regulations, the General Pretreatment Regulations for Existing and New Sources of Pollution contained in LAC Title 33, Part IX, Chapter 61 and the Best Professional Judgement (BPJ) of the reviewer.

¹ This facility is closed.

² The discharge is sanitary wastewater only.

³ This facility is located outside the City of DeQuincy limits and is therefore not connected to the POTW.

⁴ This facility is located outside the City of DeQuincy limits and is therefore not connected to the POTW. Sanitary wastewater from this facility is regulated via LDEQ General Permit LAG530041.

BIOMONITORING FREQUENCY RECOMMENDATION AND RATIONALE FOR ADDITIONAL REQUIREMENTS

Permit Number: **LA0038709**
 Facility Name: **City of DeQuincy**
 Previous Critical Biomonitoring Dilution: **89%**
 Proposed Critical Biomonitoring Dilution: **89%**
 Date of Review: **08/08/07** Name of Reviewer: **Laura Keen**

Recommended Frequency by Species:

Pimephales promelas (Fathead minnow): **Once / Quarter¹**
Ceriodaphnia dubia (water flea): **Once / Quarter¹**

Recommended Dilution Series: **28%, 38%, 50%, 67%, and 89%**

Number of Tests Performed during previous 5 years by Species:

Pimephales promelas (Fathead minnow): **20**
Daphnia pulex (water flea): **N/A – Testing of species was not required**
Daphnia magna (water flea): **N/A – Testing of species was not required**
Ceriodaphnia dubia (water flea): **20**

Number of Failed Tests during previous 5 years by Species:

Pimephales promelas (Fathead minnow): **4 lethal, 5 sub-lethal²**
Daphnia pulex (water flea): **N/A – Testing of species was not required**
Daphnia magna (water flea): **N/A – Testing of species was not required**
Ceriodaphnia dubia (water flea): **1 lethal, 3 sub-lethal²**

Failed Test Dates during previous 5 years by Species:

Pimephales promelas (Fathead minnow): **12/1/02-2/28/03 (lethal & sub-lethal); 1/1/03-3/31/03 (lethal & sub-lethal); 12/1/03-2/29/04 (lethal & sub-lethal); 3/1/04-5/31/04 (lethal & sub-lethal); 6/1/04-8/31/04 (sub-lethal)**
Daphnia pulex (water flea): **N/A – Testing of species was not required**
Daphnia magna (water flea): **N/A – Testing of species was not required**
Ceriodaphnia dubia (water flea): **9/1/05-11/30/05 (sub-lethal); 11/1/05-1/31/06 (sub-lethal); 3/1/07-5/31/07 (lethal & sub-lethal)**

Previous TRE Activities: **N/A – No previous TRE Activities**

¹ Due to significant lethal and sub-lethal failures to the *Ceriodaphnia dubia* and *Pimephales promelas*, this facility shall have an established biomonitoring testing frequency of once per quarter for *Ceriodaphnia dubia* and *Pimephales promelas* for the life of the permit.

² Due to discrepancies noted in the biomonitoring DMRs, LDEQ requested the biomonitoring lab reports on July 20th, 2007, from this facility. As of the date of this recommendation, these lab reports have not been received.

FRESHWATER CHRONIC

Additional Requirements (including WET Limits) Rationale / Comments Concerning Permitting:

The City of DeQuincy Wastewater Treatment Facility owns and operates an existing publicly owned treatment works serving the city of DeQuincy in DeQuincy, Calcasieu Parish, Louisiana. LPDES Permit LA0038709, effective March 1, 2001, contained chronic freshwater biomonitoring as an effluent characteristic of Outfall 001 for *Pimephales promelas* and *Ceriodaphnia dubia*. The effluent series consisted of 28%, 38%, 50%, 67%, and 89% concentrations, with 89% being defined as the critical dilution. Testing was to be performed once every quarter. Data on file indicate that the permittee has complied with the biomonitoring requirements contained in LA0038709 with DMR results showing 1 lethal and 3 sub-lethal failures to the *Ceriodaphnia dubia* and 4 lethal and 5 sub-lethal failures to the *Pimephales promelas* from toxicity testing during the last five years.

It is recommended that freshwater chronic biomonitoring continue to be an effluent characteristic of Outfall 001 (discharge of 1.1 mgd of treated sanitary wastewater) in LA0038709. The effluent dilution series shall be 28%, 38%, 50%, 67%, and 89% concentrations, with 89% being defined as the critical biomonitoring dilution. In accordance with the Environmental Protection Agency (Region 6) WET testing frequency acceleration(s), the biomonitoring frequency shall be once per quarter for *Pimephales promelas* and *Ceriodaphnia dubia*.

This recommendation is in accordance with the LDEQ/OES Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, EPA Region 6 Post-Third Round Whole Effluent Toxicity Testing Frequencies (Revised June 30, 2000), and the Best Professional Judgement (BPJ) of the reviewer.